

# EXPLORING NEW DIRECTIONS



**Annual Report  
2001-2002**



## THE GLOBE

*Atlas and Prometheus*



**THE FIRST GLOBES** made were not the familiar terrestrial globes, but celestial globes. Celestial globes represented the positions of stars in the night sky visible from the Earth. These stars were plotted on the outside of a sphere. Celestial globes were used for determining the positions of stars in relationship to a given point on the surface of the Earth. A globe can be pivoted to represent the daily rotation of the stars and its axis can be tilted to correspond with the latitude of a geographical position. The globe also has a horizontal ring to represent the horizon at a given time, thus it can be used in determining the time of the rising or setting of the sun or a given star.

The idea of representing the heavens on a sphere probably arose from the discovery that the Earth is spherical. The oldest known celestial globe shows the heavens carried aloft on the shoulders

of the ancient Greek Titan, Atlas.

Such globes were made in Islam throughout the Middle Ages and up to the eighteenth century. Cast in brass, by the lost wax process, they were engraved with star positions and the various celestial circles.

At the beginning of the sixteenth century the first terrestrial globes were produced as companion pieces for celestial globes. Terrestrial globes could not be used as reliable navigation instruments, and so they were relegated to libraries and studies for use as reference tools.

### THE ARMILLARY SPHERE

A skeletal globe made up of imaginary circles: the equator, the tropics of Cancer and Capricorn, the arctic and antarctic circles, the meridians passing through the poles at the first point



of Aries and Libra to indicate the vernal and autumnal equinoxes, and the oblique band of the ecliptic divided into the twelve signs of the zodiac, was used in teaching and as an analog computer in solving problems of navigation. A small sphere in the center represented the Earth, with radial arms the moon, sun, and sometimes the planets around it. With the most sophisticated of these spheres, problems involving the times of azimuths of sunrise and sunset could be solved.

Typically, armillary spheres used for observation were larger and possessed fewer rings than those which served as demonstrational instruments; this made them more accurate and easier to use.

Often the rings of demonstrational armillaries, like those of the observational spheres, were divided, and some incorporated sights which could be used to orient the instrument appropriately.

**T**HE CENTER FOR RESEARCH LIBRARIES (CRL) is a consortium of North American universities, colleges, and independent research libraries. The consortium acquires and preserves newspapers, journals, documents, archives, and other traditional and digital resources for research and teaching and makes them available to member institutions through interlibrary loan and electronic delivery.



## MISSION

*CRL's mission is to support advanced research and teaching in the humanities, sciences, and social sciences by ensuring the survival and availability of the knowledge resources vital to those activities. CRL accomplishes this mission through cooperative action with its member libraries and partners.*



## MESSAGE FROM STANLEY CHODOROW, CHAIR, BOARD OF DIRECTORS OF THE CENTER FOR RESEARCH LIBRARIES

**T**HE FISCAL YEAR 2002 was an important one in the history of the Center for Research Libraries. We welcomed a new president, Bernard Reilly, who took office in September 2001. We created a strategic plan that was approved by the Council in April 2002. And we started a vigorous program of realizing the goals of the strategic plan that has

won the support of foundations and government agencies and has raised the profile of CRL within the community of research libraries.

President Reilly took over CRL just as Interim President Dr. Beverly Lynch, James Green, and the Board, led by Treasurer Carla Stoffle, had brought its budget under control. The most important part of the budget turnaround was the negotiation of a new loan on the Center's building through the Illinois Educational Facilities Authority. This loan created the opportunity for budgetary stability, but it also placed constraints on the Center, because the loan agency and the bank guaranteeing the loan required that CRL build and maintain reserves. The required budgetary discipline was entirely consistent with the Board's goals, and, indeed, Dr. Lynch, Mr. Green, and the Board had established a stringent fiscal discipline in preparation for negotiating the new loan. You can see the results of the effort in the current annual report. The results are remarkable when one considers the economic climate in which they were achieved.

Library collections and collection-development policies and library services have been evolving rapidly for two decades, and when President Reilly entered his office it was clear to the Board that CRL had to change in order to serve the interests and needs of its member libraries. The strategic plan outlined in the annual report is the result of this recognition, and, as the report makes clear, the staff of CRL has moved quickly to begin implementing the plan.

From the Board's point of view, two components of the plan stand out. First, CRL must enhance the programs through which it coordinates its collection development aims with those of its member libraries. Whatever gaps have existed between what the member libraries and CRL have been doing must be closed quickly. The Board is pleased with the progress made so far on this component of the plan. Second, CRL must find new sources of revenue both to expand its programs and to reduce its reliance on membership dues. To reach this goal, the Center needs to develop new roles within the research library community and to find grant support that gives it an opportunity to take on new tasks. At the same time, the grants should increase CRL's capacity to change and expand its roles. The grants received this year, as detailed in the annual report, accomplish these goals, and they have helped to increase access to CRL's collections.

I have served as chair of the Board for two years, because the Board decided that a two-year term might serve CRL and its leadership better than the traditional pattern of changing the Board's officers every year. When it reviews the results of this trial the Board will decide whether to make the two-year term the new standard. For myself, I have had a great deal of pleasure working with President Reilly and the staff of CRL and with my colleagues on the Board. I end my term thinking that we have all accomplished a good deal for CRL and its member libraries

Stanley Chodorow



## MESSAGE FROM BERNARD F. REILLY, PRESIDENT OF THE CENTER FOR RESEARCH LIBRARIES

**N**AVIGATION IS THE THEME for this report on fiscal year 2002 at the Center for Research Libraries. The year's central accomplishment was adoption of a new strategic plan that sets the course the Center will follow for the next five years. The course aligns with the original mission of the Center: to "support advanced research and

teaching in the humanities, sciences, and social sciences by ensuring the survival and availability of the knowledge resources vital to those activities." The new strategic objectives indicate how we can best fulfill that mission given the new and dynamic conditions of higher education and the challenges facing research libraries today. This new set of bearings commit us to:

- aggressively pursuing and promoting strategic collection development on a cooperative basis
- optimizing resource sharing with and among CRL member institutions and end-users
- promoting and supporting action on the North American and global levels for cooperative preservation of print and digital scholarly materials, and
- expanding CRL resources and revenue streams.

Once adopted, the strategic plan gave us an immediately useful template for Center activities. Processing and cataloging operations were re-engineered this year to dramatically increase the number of records created, improving discoverability of the Center's resources by scholars at member institutions. In March the Center convened a "mini-conference" of historians from major universities throughout North America. The views and ideas expressed by conference participants reaffirmed the Center's essential role in preserving the nation's critical scholarly resources, and are enabling us to better align the Center's collection development and preservation

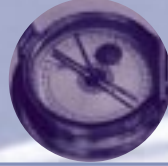
efforts with the interests and needs of its users.

This year we also began to develop new partnerships with organizations that share our mission, such as the Andrew W. Mellon Foundation, National Endowment for the Humanities, and Committee for Institutional Cooperation. Such partnerships bring new resources to bear on the pursuit of CRL goals. To answer our members growing need for international studies materials we created an International Resources directorate, bringing together CRL staff and budget lines to better focus our efforts on gathering hard-to-obtain primary source materials from the world's emerging regions. To promote action on the national level to preserve print resources the Center began to explore with a number of university partners distributed approaches to archiving journals and Web-based political communications for the larger community.

All in all the year opened a new phase in the Center's history. In this season of deliberation and change it was our good fortune to have the exceptional leadership and wisdom of Stanley Chodorow, chair of the Center's Board of Directors. Dr. Chodorow guided the Center's Board and administration with a sure hand. His knowledge of scholarly communication and the higher education in North America was indispensable in shaping the Center's new agenda, and will yield benefits to the organization and the community for years to come.

  
Bernard F. Reilly

# THE COMPASS



**THE COMPASS** was developed over centuries.

Early compasses were probably in use in ancient China, in Norway during the 1100's and in the Mediterranean shortly thereafter. There's evidence that early Viking explorers used rudimentary compasses to navigate to "Vinland" on the northern tip of Newfoundland even earlier.

The first onboard compass was probably an iron pin magnetized by a lodestone, a magnetized ferrous rock. It was placed on a piece of cork in a bowl of water to maintain its northerly orientation. Columbus may have used such a device to keep his westward heading during his voyages to the Americas, although there is some dispute over this. Later explorers certainly had such devices, likely improved ones. In the 16th century, a better understanding of the concepts of magnetism and variation resulted in more sophisticated compass design as the age of exploration began in earnest.

## THE COMPASS CARD

The traditional nautical compass has only one moving part: the compass card that indicates north, south, east and west. This disk-shaped card is mounted on a jeweled pivot. The card is encased in a housing with a transparent dome filled with damping fluid. Small magnets are attached to the underside of the card.

Direction on the compass is indicated by the lubber's line on the housing as the compass card moves underneath it. It may appear as if the card moves inside the compass. In reality, the card and its magnets stay aligned with magnetic north as the boat turns underneath the card.

## DIRECTION AS DEGREES

Early compasses indicated direction using thirty-two points: the four cardinal points of north, south, east, and west and subdivisions of these. This isn't accurate enough for modern navigation. Since the Second World War compasses have been graduated in the 360 degrees (°) of a circle. Thus 000° or 360° is north, 090° is east, 180° is south, and 270° is west. A direction of 154° is between east and south and 321° is roughly northwest.

When used to describe direction, degrees are expressed as a three-digit number and the zeros are included. For example, 045°.

CRL Annual Report – FY 2002: .....Page 9

CRL Board of Directors, Staff,  
Members and Committees: .....Page 19

Independent auditor's report: .....Page 29

Statements of financial position –  
June 30, 2002 and 2001: .....Page 32

Statements of activities: .....Page 33

Statements of cash flows: .....Page 34

Notes to financial statements: .....Page 35

Independent auditor's report on accompanying information: .....Page 40

Schedule of functional expenses and collections expenditures: .....Page 41

Schedule of program revenue and expenses – grants: .....Page 42

## TABLE OF CONTENTS



## THE ASTROLABE



**THE ASTROLABE IS A TWO-DIMENSIONAL MAP** of the three-dimensional heavens. It is also an analog computer enabling its user to find answers to such problems as where a given star will be at a given time on a given date by a simple mechanical process, instead of by long and tedious arithmetical calculations. In addition blank spaces on the astrolabe back are used for various kinds of graphs and tables. The map is drawn on a stereographic projection, that is, an observer is imagined to be looking at the celestial sphere from one of the celestial poles. From this point he projects onto the plane of the celestial equator all the celestial reference points (the tropics, ecliptic, etc.) and such stars as it is desired to plot. If the astrolabe is to be drawn for northern latitudes, then the center of the projection is the south pole, if for southern, the north pole.

A valuable teaching instrument, it could be used for measuring angles, and could solve tedious calculations by mechanical means. It was used for many purposes, mainly for ascertaining the time, judging altitude, and for determining the

position of celestial bodies at a particular moment in time. It was also used in mosques by the *muachad* for determining the astronomical time when the faithful were to be called to prayer by the *muezzin*.

Given the name "astrolabium" by Ptolemy, the first known Arabic treatises on the astrolabe appeared in the early part of the ninth century and the earliest known surviving instruments were made in the tenth. The use of the astrolabe in the west declined from the end of the seventeenth century but it continued to be made and used in Islam until recent times.

Before the development of reliable clocks, astrolabes were used to measure the position of the Sun or a star and thence to find the time. They were also used to find precisely where the Sun and certain stars were located at any date and time throughout the year.

The astrolabe was the most important astronomical calculating device before the invention of digital computers and was the most

important astronomical observational device before the invention of the telescope.

The first work of science education written in a language that may be called English (middle English, actually) was Geoffrey Chaucer's *TREATISE ON THE ASTROLABE*. Chaucer, who today is known principally for writing the *Canterbury tales*, wrote the *TREATISE ON THE ASTROLABE* for his ten-year-old son Lewis in 1387. This is some of what Chaucer had to say about the astrolabe:

*Little Lewis my son, I have perceived by certain evidences your ability to learn sciences concerning numbers and proportions. I have also considered your anxious and special request to learn the Treatise of the Astrolabe. Then forasmuch as a philosopher has said, 'he wrappeth him in his friend, who accedes to the rightful prayers of his friend,' therefore have I given you an astrolabe for our horizon, constructed for the latitude of Oxford. And with this little treatise, I propose to teach you some conclusions pertaining to the same instrument. I say some conclusions, for three reasons. The first is this: you can be sure that all the conclusions that have been found, or possibly might be found in so noble an instrument as an astrolabe, are not known perfectly to any mortal man in this region, as I suppose.*



## CRL ANNUAL REPORT – FY 2002



*...new priorities and operational objectives  
for CRL for the next five years.*

**T**HE OPERATING YEAR ending June 30, 2002 was marked by a sea change for the Center for Research Libraries (CRL) and its member institutions. To the ongoing revolution in the patterns of dissemination and use of scholarly research that have challenged major libraries in recent years were added new elements of constraint and uncertainty brought about by an economic downturn and the unforeseen international events that engaged the nation. The challenges of this new environment presented functional operational obstacles for all research libraries. For CRL, these hurdles presented a mandate to explore new programmatic initiatives and directions responsive to the changing needs of its member institutions and the scholars they serve.

Directing CRL during this exploration of new directions was its new president, Bernard F. Reilly. President Reilly assumed the leadership mantle on September 10 from interim president Dr. Beverly Lynch, who provided creative and valued stewardship to the organization during her twenty month term of service. Upon the successful completion of the leadership transition process, President Reilly and the CRL Board of Directors established as their first priority the creation of a new strategic plan, crafted in the context of the evolving requirements of scholarly communication and establishing new priorities and operational objectives for CRL for the next five years. Based on two days of focused deliberations by the CRL Board at a strategic planning retreat and wide-ranging discussions by the CRL managerial staff, the completed plan was prepared in fall of 2001, approved by the Board of Directors, and presented to the Council of Voting Members at its annual meeting in April of 2002. The plan reaffirms the Center's commitment to four core values:

**Sustainability:** The long-term preservation of artifactual materials and reliable access to digital resources vital to advanced research and teaching.

**Accountability:** Meaningful accountability by CRL to its members and to the North American research community through effective communication and organizational transparency.

**Partnership:** Leveraging the capabilities and resources of CRL staff, member institutions, and other appropriate partners to achieve common goals.

**Renewal:** Ongoing strategic planning and continual assessment and development of staff knowledge and capabilities.

To advance these core values, the plan sets out a number of strategic objectives:


1) Aggressively pursue and promote strategic collection development on a cooperative basis. CRL will strengthen and enhance its own demand-driven collecting programs and its support for members' individual efforts to build enduring scholarly resources in both print and digital formats.

2) Optimize resource sharing with and among CRL member institutions and end-users. CRL will increase visibility and usage of its collections and resources through rigorous strategic assessment of current holdings and prospective collecting areas; creation and effective dissemination of user-oriented metadata; and enhancement of digital delivery and other services.

3) Promote and support action on the North American and global levels for cooperative preservation of print and digital scholarly materials. CRL will build upon its traditional role as "fallback" repository and provider of hard copy materials to provide a trustworthy framework for cooperative preservation of the larger corpus of artifactual and digital knowledge resources held by North American libraries.

4) Expand CRL resources and revenue streams. It is both necessary and economically prudent to diversify the sources of funding for CRL to increase funding levels while decreasing CRL reliance upon member fees.

A significant catalyst toward the implementation of the plan and its objectives was provided by the invaluable work performed by the CRL Collection Assessment Task Force chaired by Ross Atkinson of Cornell University and supported by grants from the Andrew W. Mellon Foundation and the Gladys Kreible Delmas Foundation. The report of this Task Force imparted key guidance regarding the future direction of the collection-related activities of the Center and served as a blueprint for areas of re-

A circular graphic with a dark purple background and a lighter purple center, resembling a stylized globe or a clock face.

*... a blueprint for areas of re-examination and improvement...*

examination and improvement in the development and use of the collection. Among its recommendations for future CRL priorities were increased cataloging of the Center's unique international dissertations collection; collaboration with the membership on a long-term plan to coordinate the retention of traditional (non-electronic) materials in member libraries; a possible expansion of the activity scope of the Area Microfilming Projects to include the systematic and coordinated archiving of selected international networked resources; the creation of a cooperative framework for an accessible archive of gray literature; and the creation of both web-based holding lists and topic guides for important CRL collections (such as microfilm sets, textbooks and central bank reports) to expand the awareness and utility of specific collection areas to scholars.

Another significant event that informed CRL's deliberative process during this period of redirection was the convening of a two-day invitational conference of academic historians. This conference was organized to fulfill two purposes: to afford CRL a clearer sense of the needs and practices of academic historians engaged in primary source research, and to explore ways in which historians might be made more aware of the scope and depth of the Center's unique collections. The resulting dialogue imparted important new insights about the Center's role within the larger system of scholarly communications and valuable ideas about how to strengthen that role. Participants identified a number of ways in which CRL can make its collections more visible, including direct collaboration with the major scholarly societies to strengthen awareness of the Center's services and holdings, and the dissemination of information about the CRL collections to scholars in more intuitive and "discipline-friendly" forms.

The Conference participants identified and discussed three factors that serve to hamper the utilization and visibility of CRL collections and services. Those factors were:

- The Center's lack of a strong "profile" in the scholarly community. Unlike many research libraries, the Center does not have a profile that is well defined by the content of its collections or the disciplines that it serves.
- A change in the faculty-library relationship that has traditionally provided a mutually supportive

*...explore ways in which historians might be made more aware of the scope and depth of the Center's unique collections.*

framework for the building and use of scholarly resources in academic libraries. This change was attributed variously to the reduced involvement of younger scholars in developing holdings of primary source materials, a move by scholars in recent decades away from empirical research, and changes in the staffing and "culture" of academic libraries.

- The ongoing decline in support for advanced research in the humanities and social sciences at universities and academic research libraries. For most university libraries, the lion's share of resources are devoted to acquiring and preserving the most heavily used materials (i.e. English language materials supporting the undergraduate curriculum) rather than the less frequently used materials that support advanced scholarly research.



*... CRL's "new directions" to better serve the needs of its member institutions and their patrons.*

Because these trends do not uniquely affect CRL but also impact the management of scholarly resources and humanistic research in general, the conference participants noted that many of the challenges facing CRL, such as low use of holdings and high costs, "come with the territory" of maintaining collections for advanced research. Conferees also believed that the Center's role in acquiring and preserving these kinds of collections remains as relevant and essential to the health of scholarly research in the humanities and social sciences today as it was in the past. The participants voiced a consensus that the Center, because of its accountability to the broader community of American academic libraries, should take a leading role in the preservation of materials for advanced humanities and social science research.

The ideas elicited at the Historians' Conference and the insights and recommendations of the Collection Assessment Task Force will continue to provide invaluable guidance to the future governance of the Center. For years to come, the findings of these two groups will inform the implementation of CRL's "new directions" to better serve the needs of its member institutions and their patrons. The Center gratefully acknowledges the importance of the contributions of these two groups and extends its appreciation to the participants.

Subsequent to the work of these two groups and the development of the new strategic plan, CRL was awarded a two year grant of \$510,000 from the Andrew W. Mellon Foundation to commence the

implementation of new strategic directions in three critical areas. First, with respect to the Center's collection of doctoral dissertations from outside North America, the grant supported an evaluation of collection development practices and the initiation of an expanded cataloging program of these titles.

Since the dissertation collection became located at CRL shortly after its founding in 1949, these titles were uncataloged by policy, requiring prospective borrowers to initiate a request based on the name of the author. As the collection evolved into its present size of 800,000 titles, the daunting prospect of a retrospective cataloging project for these titles discouraged any revision of this policy. However, with the support of the Mellon grant and utilizing new techniques and workflows installed by the Center's new Head of Technical Services, Amy Wood, CRL staff realized significant progress in FY2002 on establishing bibliographic control of these holdings. More than 22,000 dissertation titles were cataloged in the first five months of the project, and subsequent progress in the first twelve months approached 100,000 titles. The availability of these catalog records in the Center's online public catalog and in the national bibliographic resources greatly enhanced the accessibility and value of this collection to researchers in response to the expressed requests of CRL's member institutions in recent years.

The second initiative made possible under the Mellon grant was a two-year project to model and evaluate a framework for the distributed long-term retention of print serial publications important to scholarly research. Under this project, CRL is enlisting a subset of its member institutions to create a distributed program for last copy retention, initially focusing on the 50 to 75 journal titles available in electronic format through the JSTOR program. CRL will work with the participating libraries to resolve questions of control, access, preservation and other issues related to development and administration of the archive. CRL will also develop efficient workflow procedures for the ongoing extraction and deposit of JSTOR titles, assess record-keeping requirements, and review the economics of the model. (Barbara DesRosiers joined the CRL staff in July 2002 to lead this effort.)

The third activity funded by the Mellon grant was a project to implement a Web based communication and project management infrastructure for CRL area studies and cooperative acquisitions

*...to resolve questions of control, access, preservation and other issues related to development and administration of the archive.*



*...allow the similar yet divergent projects to capitalize on the advances, lessons, and pathways forged by one another.*

programs. This infrastructure will enable CRL to strengthen and facilitate its collaborative efforts and begin building the stable framework required for the expanded preservation of networked and other digital resources under these programs. The on-line collaborative space will also provide an environment that will help CRL cooperative collection development efforts already underway move toward digital acquisitions.

CRL's area studies and general acquisitions programs are among the most effective and successful models of long-term collaborative collection of resources. They are remarkable not only for the type and amount of material they provide and the breadth of the audience they serve, but also for their effective use of expertise in the various disciplines in international studies to guide their operations. By creating an advanced infrastructure for communication and management, a number of the project activities can be integrated into a seamless "workspace" that will allow project participants to communicate, peruse and download reports and updates, post curriculum vitae and competency inventories, vote on proposals, and innovate and collaborate on an immense variety of other activities. It will also enable CRL to create synergies among its several groups and allow the similar yet divergent projects to capitalize on the advances, lessons, and pathways forged by one another. Moreover, the participants in developing these collections, and others involved in or contemplating cooperative acquisitions efforts, will benefit from the additional transparency of the projects.

The Mellon grant was not the only significant source of outside support for the Center's initiatives in 2002. In May, CRL was awarded a grant of \$350,000 from the National Endowment for the Humanities for continued support for the International Coalition of Newspapers (ICON) project. ICON is a multi-institutional cooperative effort to increase the availability of foreign newspaper collections by improving bibliographic and physical access to resources, and was initially funded by a two year grant from NEH in May 2000. This second grant provides for the project's continuation for another two years. ICON's goals for the period of this new grant are to gather detailed bibliographic information on international newspaper collection from all CRL members; to continue the cooperative program of preservation

microfilming of selected international newspapers; to enhance the ICON Database of International Newspapers and a Web-based resource on international newspaper preservation activities; to continue the development of the ICON website as a central clearinghouse for information; and to convene a workshop to facilitate the implementation of standards relating to the addition of newspaper holdings data in national bibliographic utilities and local catalogs.

ICON has accomplished much during the first two years of its existence. The ICON database currently contains more than 25,000 bibliographic and holding records for international newspaper titles held in U.S. institutions including the Library of Congress, CRL, and the University of Illinois. Preservation microfilming was recently completed on holdings of the Shanghai Times from CRL, the Library of Congress, and the Hoover Institution to create a nearly complete run of this English-language daily from 1927-1945. (The Shanghai Times and all titles microfilmed by the ICON project are available on loan from CRL.) As it enters into its next phase of expanded activity, the project continues to be based at CRL under the direction of John Dorr.

In addition to the new initiatives supported by these grants, the Center for Research Libraries continued during FY 2002 to seek new ways to enhance its traditional range of activities in a number of areas. Although 2002 was a watershed year in many respects, CRL's traditional service programs continued to flourish. CRL staff maintained their commitment to providing efficient and responsive service to its member institutions, responding to 40,000 interlibrary loan requests during the year and delivering 80,000 items in both hard copy and other formats. The Center's additions to its collections during the year included many noteworthy resources including major microfilm sets such as:

- Bibliothek Der Frauenfrage in Deutschland (Library of the "Woman Question" in Germany (installments 1-6 of 12);
- Additions to the Center's extensive holdings of church missionary archives (including reels dealing with Africa and India);

*...commitment to providing efficient and responsive service to its member institutions...*

- The NACLA Archive of Latin Americana and the Princeton Latin American Archive;
- A collection of documents dealing with the U.S. and the Russian Civil War; and
- The first installment of microfilm of the 1930 U.S. census.

CRL also continued its strong support for activities to strengthen the availability of resources related to area studies. During 2002, the Area Studies Microfilm Projects continued many of their previous efforts to microfilm important and rarely-held material from other regions of the world including Malawi, Tanzanian, and Malian newspapers (CAMP), Nepali newspapers acquired from the Madan Puraskar Pustakkalya library in Kathmandu (SAMP), Russian regional newspapers 1991-2000 (SEEMP) and Algerian newspapers (MEMP). Other new projects approved by the Area Studies Microform Projects for the upcoming year include the original filming of Southeast Asian newspapers held at Cornell University, Indonesian political tabloids related to the recent elections there, and historical Marathi and Punjabi journals from India. In addition, CRL has continued to assemble guides to various microform collections, including the "Gedney Collection of Thai Material" for SEAM, "African Training and Research Centre for Women" publications for CAMP, and leftist political publications from Argentina for LAMP. These guides are available online at the Center's website.

A circular inset image showing a satellite in space, orbiting the Earth. The satellite is illuminated by the sun, and the Earth's surface is visible in the background.

*...strengthen the availability of resources related to area studies.*

The Center was also very pleased to welcome the University of Miami, and University of Pittsburgh as new Voting Members during FY 2002 and Clemson University, East Carolina University, Nazareth College of Rochester, and Chicago State University as new Associate Members.

In the area of financial management, CRL realized an increase in unrestricted net assets of \$256,000 for the year, well above the budgeted deficit. (CRL budgets a decline in unrestricted net assets to reflect the impact of the depreciation of the building and long-term assets, which are non-cash expenses and not supported by current year revenues.) Unrestricted revenue for the year reached \$4,990,000 and exceeded budget by \$167,000 because of the admission of new members and microfilm sales in excess of budget.



In addition, CRL posted restricted grant income in FY 2002 of \$909,000, earmarked for specific projects in that year and following years. Unrestricted expenses for the year were \$4,734,000, \$390,000 below budget. With the favorable results of the past two years, CRL has managed to restore its core reserves back to a level approximating three months of operating expenses, the absolute minimum level acceptable to sound financial management. It has accomplished this without any extraordinary membership fee increases or significant service curtailments.

In conclusion, we would like to acknowledge that the new directions taken by Center for Research Libraries in FY 2002 were accomplished within the framework of the constant evolution of CRL as a cooperative and collaborative partnership. The Board of Directors, committee and task force members, the CRL staff, the scholars and funders who informed the process, participated in the decision process, and supported the new plan and its implementation at each stage, represent the greatest asset of the Center – the knowledge, commitment and support of the research library community. CRL's most visible asset is the shared collection it manages, but its greatest strength is the enduring support and commitment of its member institutions, even in periods of economic constraint. The course that CRL plots in the future will be in the direction that provides the greatest possible benefit to its members and the broader community of scholarly inquiry they represent and serve. We expect an eventful and exciting journey.

*... the new directions taken by Center for Research Libraries in FY 2002 were accomplished within the framework of the constant evolution of CRL as a cooperative and collaborative partnership.*

## THE SEXTANT



**NAVIGATORS USE THE STARS**, including our sun, the moon, and planets to find their way. For at least two millennia, navigators have known how to determine their latitude — their position north or south of the equator. At the North Pole, which is 90 degrees latitude, Polaris (the North Star) is directly overhead at an altitude of 90 degrees. At the equator, which is zero degrees latitude, Polaris is on the horizon with zero degrees altitude. Between the equator and the North Pole, the angle of Polaris above the horizon is a direct measure of terrestrial latitude.

In ancient times, the navigator who was planning to sail out of sight of land would simply measure the altitude of Polaris as he left homeport, in today's terms measuring the latitude of home port. To return after a long voyage, he needed only to sail north or south, as appropriate, to bring Polaris to the altitude of home port, then turn left or right as appropriate and "sail down the latitude," keeping Polaris at a constant angle.

The Arabs knew all about this technique. In early days, they used one or two fingers width, a thumb and little finger on an outstretched arm or an arrow held at arms length to sight the horizon at the lower end and Polaris at the upper.

The astronomer's astrolabe was the grandfather of the much simpler, easy to use mariner's quadrant which can be traced back to the 1200s.

Like the knots-in-a string method of the Arab kamal, the quadrant provided a quantitative measure, in degrees, of the altitude of Polaris or the sun, and related this number to a geographic position — the latitude — on Earth's surface. The quadrant could measure up to 90 degrees, that is, a quarter of a circle. The observer determined the altitude of the sun by observing its shadow while simultaneously sighting the horizon. With a proven track record, quadrants remained popular for more than 150 years, even after much more sophisticated instruments using double-reflection optics were invented.

However, design improvements eventually did prevail. The more inventive instrument makers were shifting their focus to optical systems based on mirrors and prisms that could be used to observe the nighttime celestial bodies.

In 1731 the octant — forerunner of the modern sextant — was introduced. An octant measures angles up to 90 degrees and is ideally suited for observations of celestial bodies above the horizon. But greater angle range is needed for lunar distance observations. It was a simple matter to enlarge the octant, an eighth of a circle, to the sextant, a sixth of a circle, that could measure up to 120 degrees.

The early space flights used an especially designed sextant. In outer space there is no such thing as "horizontal" or "vertical." Instead, the instrument was designed to measure the angle between the edges of the earth or the angle between celestial bodies to determine the space craft's position in space.

## BOARD OF DIRECTORS, OFFICERS, AND STAFF

### BOARD OF DIRECTORS FY 2002 (Elected April 2001)

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## AREA STUDIES PROJECTS (as of June 30, 2002) (*continued*)

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University of Miami  
University of Michigan  
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University of New Mexico  
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Indiana University  
Library of Congress  
University of Michigan  
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## THE CHRONOMETER



**THE CHRONOMETER** is an instrument for keeping highly accurate time, used especially in navigation. Before the advent of radio time signals it was the only device that recorded the time accurately enough for a ship at sea to determine its longitude. A mechanical chronometer is a spring-driven escapement timekeeper, like a watch, but its parts are more massively built. Changes in the tension of the spring caused by variations in temperature are compensated for by devices built into the chronometer. Modern chronometers are electronic, regulated by the vibrations of a quartz crystal.

Nighttime oceanic navigation depended on the determination of two coordinates – latitude and longitude. Latitude was the more easily determined of the two because it could be calculated by the angle of Polaris or the Southern Cross above the horizon. Navigators could determine latitude with acceptable accuracy as early as the fifteenth century.

The problem of precise determination of longitude was solved by John Harrison in 1735 with the

invention of the chronometer, the first clock that remained accurate while at sea.

**CAPTAIN JAMES COOK** explored the Pacific (1768-1771, 1772-1775, 1776-1780) signaling a new era of exploration. During his second and third voyages, Cook proved that a chronometer can give seamen the means to determine longitude accurately.

A further-improved chronometer was given to Captain William Bligh for use on the *Bounty*, one of Cook's ships of exploration.

Subsequent to the mutiny in Tahiti, First Officer Fletcher Christian and the other mutineers searched for a place to settle. When they found Pitcairn Island they noted that Captain Philip Carteret, its discoverer, hadn't charted its location correctly on Admiralty maps. It was mismapped by the equivalent of a two-day voyage.

The mutineers guessed that future expeditions would also have chronometers. They bet that these expeditions would not be able to find Pitcairn, and so decided to settle there.

The chronometer remained with the mutineers

on Pitcairn Island until the women, children, and the only surviving mutineer, John Adams, were discovered there in 1808 by Captain Matthew Folger of the American whaling ship *Topaz* of Boston.

Folger bartered for the chronometer with Adams, trading him a "small silk handkerchief he prizes" for the chronometer and the *Bounty's* azimuth compass.

On the way to Valparaiso Folger's ship arrived at Juan Fernandez Island where the governor confiscated the chronometer and impounded the ship and crew. They were freed some months later.

The chronometer reappeared at Concepcion, Chile, in the possession of an old mule skinner by the name of Castillo. Following his death in Santiago in 1840, Castillo's family sold the chronometer to Captain Thomas Herbert, R.N., of HMS *Calliope*. Herbert, in turn, presented it to the British Government. It resides in the Royal Observatory at Greenwich.



INDEPENDENT AUDITOR'S REPORT  
FOR THE YEAR ENDED JUNE 30, 2002



# CONTENTS

## STATEMENTS OF FINANCIAL POSITION JUNE 30, 2002 and 2001

Statements of financial position – June 30, 2002 and 2001 .....	Page 32
Statements of activities .....	Page 33
Statements of cash flows .....	Page 34
Notes to financial statements .....	Page 35
Accompanying information - Schedule of functional expenses and collections expenditures .....	Page 41
Schedule of program revenue and expenses – grants .....	Page 42

# INDEPENDENT AUDITOR'S REPORT



Board of Directors  
Center for Research Libraries  
Chicago, Illinois

We have audited the accompanying statements of financial position of CENTER FOR RESEARCH LIBRARIES (an Illinois not-for-profit corporation) as of June 30, 2002 and 2001, and the related statements of activities and cash flows for the years then ended. These financial statements are the responsibility of the Organization's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in Government Auditing Standards, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Center for Research Libraries as of June 30, 2002 and 2001, and the changes in its net assets and cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

In accordance with Government Auditing Standards, we have also issued our report dated October 9, 2002, on our consideration of the Center for Research Libraries' internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grants. That report is an integral part of an audit performed in accordance with Government Auditing Standards and should be read in conjunction with this report in considering the results of our audits.

Our audits were made for the purpose of forming an opinion on the basic financial statements taken as a whole. The accompanying information on pages 41 and 42 is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information has been subjected to the auditing procedures applied in the audits of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

*Glean Ingram + Company Ltd.*

Chicago, Illinois  
October 9, 2002



	<u>2002</u>	<u>2001</u>
<b>CURRENT ASSETS:</b>		
Cash and cash equivalents	\$ 3,543,017	\$ 2,620,130
Less fiduciary funds - Note 8	<u>(341,562)</u>	<u>(282,516)</u>
	3,201,455	2,337,614
Accounts receivable	99,040	42,980
Grants receivable	161,511	110,849
Prepaid expenses	26,713	31,364
Escrow fund	82,315	211,039
Current portion of deferred financing costs	5,592	5,592
Total current assets	<u>3,576,626</u>	<u>2,739,438</u>
<b>OTHER ASSETS:</b>		
Collections - Note 3	-	-
Property and equipment - Note 4	6,034,333	6,287,625
Long-term portion of deferred financing costs	<u>123,029</u>	<u>128,621</u>
Total other assets	<u>6,157,362</u>	<u>6,416,246</u>
Total assets	<u>\$ 9,733,988</u>	<u>\$ 9,155,684</u>
<b>CURRENT LIABILITIES:</b>		
Accounts payable and accrued expenses	\$ 603,358	\$ 565,446
Deferred revenue	2,547,524	2,605,364
Current portion of loan payable - Note 5	94,737	94,740
Total current liabilities	<u>3,245,619</u>	<u>3,265,550</u>
<b>NONCURRENT LIABILITIES:</b>		
Loan payable - Note 5	<u>2,115,790</u>	<u>2,210,524</u>
Total liabilities	<u>5,361,409</u>	<u>5,476,074</u>
<b>NET ASSETS:</b>		
Unrestricted	3,754,911	3,499,383
Temporarily restricted - Note 7	617,668	180,227
Total net assets	<u>4,372,579</u>	<u>3,679,610</u>
Total liabilities and net assets	<u>\$ 9,733,988</u>	<u>\$ 9,155,684</u>

The accompanying notes are an integral part of these statements.





	2002			2001		
	Unrestricted	Temporarily Restricted	Total	Unrestricted	Temporarily Restricted	Total
<b>Revenue and other support:</b>						
Membership fees	\$4,194,529	\$	\$4,194,529	\$4,012,330	\$	\$4,012,330
Newspaper microfilm fees	7,450		7,450	7,450		7,450
Newspaper microfilm sales	228,131		228,131	162,337		162,337
Microform sales	11,565		11,565	31,357		31,357
Access service sales	14,774		14,774	19,576		19,576
Grants		909,095	909,095	13,666	258,028	271,694
Investment income	55,998	5,063	61,061	93,498	10,845	104,343
Miscellaneous income	44,672		44,672	16,917		16,917
Net assets released from restrictions:						
Satisfaction of program restrictions	432,773	(432,773)	-	187,274	(187,274)	-
Total revenue and other support	<u>4,989,892</u>	<u>481,385</u>	<u>5,471,277</u>	<u>4,544,405</u>	<u>81,599</u>	<u>4,626,004</u>
<b>Expenses:</b>						
Program activities -						
Global Newspapers	931,316		931,316	792,400		792,400
Serials	666,490		666,490	642,196		642,196
International Dissertations	473,057		473,057	391,393		391,393
Repository Collections	589,288		589,288	613,822		613,822
CRL Area Studies	399,727		399,727	376,239		376,239
Grants	<u>432,773</u>		<u>432,773</u>	<u>187,274</u>		<u>187,274</u>
Total program activities	3,492,651	-	3,492,651	3,003,324	-	3,003,324
Management and general	498,571		498,571	752,819		752,819
Fundraising	<u>13,052</u>		<u>13,052</u>	<u>12,442</u>		<u>12,442</u>
Total expenses	<u>4,004,274</u>	<u>-</u>	<u>4,004,274</u>	<u>3,768,585</u>	<u>-</u>	<u>3,768,585</u>
Change in net assets before changes related to collection items not capitalized	985,618	481,385	1,467,003	775,820	81,599	857,419
<b>Change in net assets related to collection items not capitalized -</b>						
Collections - Note 3	<u>730,090</u>	<u>43,944</u>	<u>774,034</u>	<u>691,037</u>	<u>32,322</u>	<u>723,359</u>
Change in net assets	255,528	437,441	692,969	84,783	49,277	134,060
Net assets at beginning of year, as previously reported				3,331,758	467,727	3,799,485
Prior period adjustment - Note 11				82,842	(336,777)	(253,935)
Net assets at beginning of year - as restated	<u>3,499,383</u>	<u>180,227</u>	<u>3,679,610</u>	<u>3,414,600</u>	<u>130,950</u>	<u>3,545,550</u>
Net assets at end of year	<u>\$3,754,911</u>	<u>\$ 617,668</u>	<u>\$4,372,579</u>	<u>\$3,499,383</u>	<u>\$ 180,227</u>	<u>\$3,679,610</u>

The accompanying notes are an integral part of these statements.



	<u>2002</u>	<u>2001</u>
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>		
Member and nonmember fees received	\$ 4,387,221	\$ 4,326,343
Grants and contributions received	881,265	335,586
Interest received	61,061	104,343
Cash paid to suppliers and employees	(3,476,879)	(3,138,623)
Interest paid	(54,792)	(96,941)
Net cash provided by operating activities	<u>1,797,876</u>	<u>1,530,708</u>
<b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>		
Purchase of collections	(774,034)	(723,359)
Transfer from escrow fund	128,724	188,961
Purchase of property	(193,988)	(118,303)
Net cash used in investing activities	<u>(839,298)</u>	<u>(652,701)</u>
<b>CASH FLOWS FROM FINANCING ACTIVITIES:</b>		
Repayment of loans	(94,737)	(94,737)
Net cash used in financing activities	<u>(94,737)</u>	<u>(94,737)</u>
Net increase in cash and cash equivalents	863,841	783,270
<b>CASH AND CASH EQUIVALENTS - BEGINNING OF YEAR</b>	<u>2,337,614</u>	<u>1,554,344</u>
<b>CASH AND CASH EQUIVALENTS - END OF YEAR</b>	<u>\$ 3,201,455</u>	<u>\$ 2,337,614</u>
<b>RECONCILIATION OF CHANGE IN NET ASSETS TO NET CASH PROVIDED BY OPERATING ACTIVITIES:</b>		
<b>CHANGE IN NET ASSETS</b>	<u>\$ 692,969</u>	<u>\$ 134,060</u>
<b>ADJUSTMENTS TO RECONCILE CHANGE IN NET ASSETS TO NET CASH PROVIDED BY OPERATING ACTIVITIES -</b>		
Collections accessions	774,034	723,359
Depreciation expense	447,280	432,550
(Increase) decrease in accounts receivable	(56,060)	121,954
(Increase) decrease in grants receivable	(50,662)	63,892
Decrease in prepaid expenses	4,651	16,298
Decrease in deferred financing costs	5,592	11,878
Increase in accounts payable and accrued expenses	37,912	72,295
Decrease in deferred revenue	(57,840)	(45,578)
Total adjustments	<u>1,104,907</u>	<u>1,396,648</u>
Net cash provided by operating activities	<u>\$ 1,797,876</u>	<u>\$ 1,530,708</u>

The accompanying notes are an integral part of these statements.



**1. ORGANIZATION AND NATURE OF ACTIVITIES:**

The Center for Research Libraries (Center) is a membership consortium of institutions with significant academic and research libraries. The Center’s mission is to foster and advance scholarly and scientific research through cost-effective, cooperative programs that provide reliable access through traditional and electronic means to unique and unusual collections of library materials that are in all appropriate formats, international in scope and comprehensive in disciplines.

A majority of the Center’s revenue is derived from membership fee assessments. Other revenue and support consists of grants and sales of materials reproduced.

The Center qualifies under Section 501(c)(3) of the Internal Revenue Code and is exempt from income taxes, except on unrelated business income.

The following provides a brief description of the Center’s programs and supporting services:

**Global Newspapers -**

Global Newspapers improves access to global newspapers for scholars and other users worldwide by developing, managing and preserving at the

Center a representative collection of newspapers and by stimulating cost savings through collaboration among a variety of partners to expand the long-term availability of newspapers.

**Serials -**

Serials augments the pool of serial titles available for scholarly research by using cooperative collection development to reduce local subscription and space costs.

**International Dissertations -**

International Dissertations provides comprehensive access to doctoral dissertations submitted to institutions outside the United States and Canada, regardless of format, subject and location.

**Repository Collections -**

The Repository Collections program has four major subcomponents -

- a) The Microform and Reprint Collections Component provides access to a large body of material that is either in low use locally or not available in its original form so as to reduce

total costs.

- b) The Collections of Record Component gathers dispersed materials into an accessible, unified, comprehensive collection to reduce local space costs.
- c) The Retrospective Serial Titles Component backs up emerging electronic serials files and reduces the shelving costs of libraries that have discarded the paperback files.
- d) The Rarely-Held Monographs Component gathers little used, retrospective monographs into an accessible and unified collection to reduce local space costs.

**CRL Area Studies -**

CRL Area Studies activities provide access to a pool of materials that are beyond the means of any individual area studies program. Without this extended program activity, these acquired materials would not otherwise be preserved.



**Grants -**

Includes special projects of varying activities to collect, preserve and catalog materials based on grantor terms. Grant funds are also used to investigate alternative media storage techniques.

**Management and General -**

Includes the functions necessary to maintain an equitable employment program; to ensure an adequate working environment; to provide coordination and articulation of the Center's program strategy through the Office of the President; to secure proper administrative functioning of the Board of Directors and to manage the Center's financial and budgetary responsibilities.

**Fundraising -**

Provides the structure necessary to encourage and secure financial support from individuals, foundations and the government.

**2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:**

**A. Basis of presentation -**

The Center reports information regarding its financial position and activities according to three classes of net assets: unrestricted net assets, temporarily restricted net assets, and permanently restricted net assets. There are no permanently restricted net assets at June 30, 2002 and 2001.

**B. Basis of accounting -**

The Center prepares its financial statements on the accrual basis of accounting under which revenue is recognized when earned rather than when received, and expenses are recognized when incurred rather than paid. The accrual basis of accounting requires the use of estimates and assumptions. Accordingly, actual results may differ from those estimated.

**C. Cash and cash equivalents -**

The Center defines cash equivalents as all highly liquid investments with a maturity of three months or less at the date of acquisition.

**D. Property and equipment -**

Property and equipment is recorded at cost and is depreciated over the estimated useful lives of the assets using the straight-line method. Expenditures for maintenance and repairs which do not extend the useful life of the assets are charged to expense.

Estimated useful lives are as follows -

Building and improvements	30
Furniture and equipment	3 – 7

**E. Inexhaustible collections and books -**

The collections, which were acquired through purchases and contributions since the Center's inception, are not recognized as assets on the Statement of Financial Position. Purchases of collection items are recorded as decreases in unrestricted net assets in the year in which the items are acquired, or as decreases in temporarily or permanently restricted net assets if the assets used to purchase the items are restricted by donors. Contributed collection items are not reflected on the financial statements. Proceeds from deaccessions or insurance recoveries are reflected as

increases in the appropriate net asset class.

## **F. Deferred financing costs -**

All of the costs incurred in obtaining the \$2,400,000 loan to the Center have been deferred and are being amortized over the life of the loan starting in fiscal 2001. The cost amortized in fiscal 2002 and 2001, amounted to \$5,592 and \$11,878, respectively.

## **G. Contributions -**

Contributions received are recorded as unrestricted, temporarily restricted or permanently restricted support depending on the existence or nature of any donor imposed restrictions on the use of the funds. Contributions reported as temporarily restricted support are reclassified to unrestricted net assets when the restrictions have been satisfied and are reported in the Statement of Activities as net assets released from restrictions.

## **H. Revenue recognition -**

Membership dues are recognized as revenue during the membership year. Dues received in advance of the membership year are accounted for as deferred revenue at year-end.

## **I. Allocation of expenses -**

The costs of providing the Center's various programs and supporting services have been summarized on a functional basis in the Statement of Activities. Accordingly, certain costs have been allocated among the programs and supporting services on the basis of estimates by management.

## **3. COLLECTIONS:**

The Center's Collections are made up of a wide array of publications and print material, international in scope, that are held for educational, research, scientific and curatorial purposes. New acquisitions as well as large segments of existing collections are catalogued. All holdings are preserved and their existence and condition are continuously monitored. The Collections are subject to a policy that requires proceeds from their sales to be used to acquire other items for Collections. No Collection items were deaccessioned through sales in 2002.



**5. LOAN PAYABLE:**

In June 2000, the Center obtained a \$2,400,000 loan under the Illinois Educational Facilities Authority’s Cultural Pooled Financing Program. The loan is secured by the Center’s property and also by a letter of credit for 110 percent of the loan amount. The letter of credit expires in 2003 and no balances are currently drawn. The loan is also subject to a debt service covenant referred to as the “Keepwell Agreement”. The covenant has been met for the year ended June 30, 2002. The loan is to be repaid in monthly installments of \$7,895, plus interest at a variable rate, with a final maturity in 2025.

Principal payments by year are as follows –

<b>2003</b>	\$ 94,737
<b>2004</b>	94,737
<b>2005</b>	94,737
<b>2006</b>	94,737
<b>2007</b>	94,737
<b>2008 and thereafter</b>	<u>1,736,842</u>
	2,210,527
<b>Less – current portion</b>	<u>(94,737)</u>
<b>Long-term portion</b>	\$2,115,790

**6. LEASES:**

The Center has entered into two operating leases with unrelated parties for office equipment expiring in 2004.

Future minimum lease payments are as follows –

2003	\$17,808
2004	<u>8,383</u>
	\$26,191

**7. TEMPORARILY RESTRICTED NET ASSETS:**

Temporarily restricted net assets consist of grants received from private foundations and the federal government to support microform projects and the purchase of equipment to automate library materials.

**8. FIDUCIARY FUNDS:**

The Center serves as a fiscal agent for groups involved in area study activities. The groups are: Cooperative Africana Microform Project (CAMP), Latin American Microform Project (LAMP), Middle East Microform Project (MEMP), South Asia Microform Project (SAMP), Southeast Asia Microform Project (SEAMP), and Slavic and East European Microform Project (SEEMP). The area study groups assess fees to their members and incur expenditures for the acquisition of International library materials, the majority of which are contributed to the Center. The activity for 2002 is as follows -

## **9. PENSION PLAN:**

The Center's Retirement Plan is a defined contribution, money purchase pension plan. Under this plan, funds contributed by the employer and participating employees are used to purchase retirement annuity and death benefit policies for the participants through the Teachers Insurance and Annuity Association and/or the College Retirement Equities Fund. Contributions are based on participants' compensation. Pension expense for fiscal 2002 and 2001 was \$155,057 and \$121,691, respectively.

## **10. CONCENTRATION OF CREDIT RISK:**

The Center maintains cash balances at two financial institutions. The balances are insured by the Federal Deposit Insurance Corporation (FDIC) up to \$100,000 per institution. Uninsured balances were \$476,449 at June 30, 2002. The Center attempts to minimize this risk by maintaining funds in reputable financial institutions.

## **11. PRIOR PERIOD ADJUSTMENT:**

The Center determined that amounts previously recorded as temporarily restricted net assets for the Area Studies activities were more appropriately recorded as fiduciary funds. Beginning net assets were adjusted to reflect this correction.



CENTER FOR RESEARCH LIBRARIES

## ACCOMPANYING INFORMATION





	Program Services					Supporting Services			Total
	Global Newspapers	Serials	International Dissertations	Repository Collections	CRL Area Studies	Grants	Management and general	Fundraising	
<b>Support services:</b>									
Cataloging fees	\$ 687	\$ 344	\$ 1	\$ 5,486	\$ 343	\$	\$	\$	\$ 6,861
Borrowing transaction fees	591	296		4,731	296				5,914
Innovative	3,944	1,972		31,549	1,971				39,436
Microform costs	174,308					151,842			326,150
Other support	21,934	20,545	12,159	14,968	13,273	25,230	42,698	646	151,453
	<u>201,464</u>	<u>23,157</u>	<u>12,160</u>	<u>56,734</u>	<u>15,883</u>	<u>177,072</u>	<u>42,698</u>	<u>646</u>	<u>529,814</u>
<b>Personnel and operations:</b>									
Consumable supplies	14,270	15,303	9,601	12,742	6,179	3,934	11,668	142	73,839
Memberships	4,903	3,254	829	4,173	1,347		17,914		32,420
Insurance	6,471	9,091	5,265	9,907	1,554		2,526		34,814
Travel	4,073	2,727	722	3,432	1,122	19,284	14,389		45,749
Business expense	(942)	(857)	(554)	(721)	(807)	7,536	(266)	(57)	3,332
Printing	(534)	(534)	(356)	(178)	(178)	2,240	18,882		19,342
Postage and delivery	28,335	28,208	18,752	9,861	10,027	6,365	2,373	26	103,947
Telecommunications	3,686	3,321	2,060	2,425	2,419	902	9,664	73	24,550
Board and council expense							31,891		31,891
Member relations							2,569		2,569
Exhibits expense							4,277		4,277
Special events expense						5,246			5,246
Personnel	530,579	390,216	312,833	282,764	324,095	114,088	317,346	11,469	2,283,390
	<u>590,841</u>	<u>450,729</u>	<u>349,152</u>	<u>324,405</u>	<u>345,758</u>	<u>159,595</u>	<u>433,233</u>	<u>11,653</u>	<u>2,665,366</u>
<b>Plant and other:</b>									
Equipment leases	4,286	3,860	2,394	2,822	2,815		6,646	85	22,908
Equipment purchases					2,469	22,351			24,820
Service contracts	10,835	14,685	8,544	15,657	3,047		5,469	68	58,305
Repairs	3,522	4,948	2,866	5,392	846		1,375	17	18,966
Utilities	29,728	41,766	24,189	45,512	7,140		11,606	144	160,085
Indirect cost allocation						37,843	(37,843)		
	<u>48,371</u>	<u>65,259</u>	<u>37,993</u>	<u>69,383</u>	<u>16,317</u>	<u>60,194</u>	<u>(12,747)</u>	<u>314</u>	<u>285,084</u>
<b>Total operating expenses</b>	<u>840,676</u>	<u>539,145</u>	<u>399,305</u>	<u>450,522</u>	<u>377,958</u>	<u>396,861</u>	<u>463,184</u>	<u>12,613</u>	<u>3,480,264</u>
Interest expense (including line-of-credit fees totaling \$25,300)	14,249	20,019	11,594	21,814	3,422		5,563	69	76,730
Depreciation –									
Building	57,581	80,898	46,852	88,154	13,829		22,480	280	310,074
Equipment	18,810	26,428	15,306	28,798	4,518	35,912	7,344	90	137,206
<b>Total expenses</b>	<u>\$ 931,316</u>	<u>\$666,490</u>	<u>\$ 473,057</u>	<u>\$ 589,288</u>	<u>\$399,727</u>	<u>\$ 432,773</u>	<u>\$ 498,571</u>	<u>\$ 13,052</u>	<u>4,004,174</u>
<b>Collection expenditures – not capitalized:</b>									
Materials	\$ 127,174	\$226,027	\$ 57,593	\$ 289,820	\$ 7,007	\$ 43,233	\$	\$	\$ 750,854
Preservation	13,730	1,961		3,923					19,614
Reference works	571	571	571	571	571	711			3,566
	<u>\$ 141,475</u>	<u>\$228,559</u>	<u>\$ 58,164</u>	<u>\$ 294,314</u>	<u>\$ 7,578</u>	<u>\$ 43,944</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 774,034</u>



	Mellon Foundation Collection Initiatives			Mellon Foundation		Mellon/Delmas Foundation Collection Assessment Project	International Conference on Newspapers	Department of Education Digital South Asian Library	Mellon Foundation Brazil Digitizing Project	H. Luce Foundation Vietnam Microforming	Total
	Dissertation	JSTOR	Area Studies	Historian's Conference	JSTOR Deposits						
<b>Revenue:</b>											
Federal grants	\$	\$	\$	\$	\$	\$	\$ 265,173	\$ 138,437	\$	\$	\$ 403,610
Foundations	78,510	262,120	169,370						(4,515)		505,485
Investment income	270	983	635	519	486	696			34	1,440	5,063
Grant revenue	<u>\$ 78,780</u>	<u>\$ 263,103</u>	<u>\$ 170,005</u>	<u>\$ 519</u>	<u>\$ 486</u>	<u>\$ 696</u>	<u>\$ 265,173</u>	<u>\$ 138,437</u>	<u>\$ (4,481)</u>	<u>\$ 1,440</u>	<u>\$ 914,158</u>
<b>Expenditures:</b>											
Grant collections											
materials -											
not capitalized	\$ 711	\$	\$	\$	\$		\$ 873	\$ 42,360	\$	\$	\$ 43,944
Microform costs							151,842				151,842
Other support				2,739		8,400	9,090	5,001			25,230
Supplies	2,716						609	609			3,934
Travel				13,947		1,198	1,880	2,259			19,284
other business											
expenses				95		1,788	1,954	8,945			12,782
Printing							2,240				2,240
Telecommunications				117			785				902
Postage and delivery				14	3,800		16	744			6,365
Personnel						2,220	62,132	46,873	788	2,075	114,088
Equipment	3,036						10,121	6,787	2,407		22,351
Depreciation expense								35,912			35,912
Indirect cost allocation							26,351	11,492			37,843
Total grant											
expenditures	<u>\$ 6,463</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 16,912</u>	<u>\$ 3,800</u>	<u>\$ 16,647</u>	<u>\$ 266,643</u>	<u>\$ 160,982</u>	<u>\$ 3,195</u>	<u>\$ 2,075</u>	<u>\$ 476,717</u>

## THE SATELLITE LINK



**COMMUNICATIONS SATELLITES** have been with us for nearly half a century. The Apollo Moon landing in 1969 may be better remembered than the birth of the communications satellite program, but the latter has probably had a greater effect on the average person.

In 1945 an RAF electronics officer and member of the British Interplanetary Society, (and noted science-fiction author) Arthur C. Clarke, wrote a short article in *WIRELESS WORLD* that described the use of manned satellites in 24-hour orbits high above the world's land masses to distribute television programs.

In 1960 AT&T filed with the Federal Communications Commission (FCC) for permission to launch an experimental communications satellite. By 1961, NASA had awarded a competitive contract to RCA to build a communications satellite (RELAY); AT&T was building its own medium-orbit satellite (TELSTAR)

which NASA would launch on a cost-reimbursable basis. Subsequently, NASA awarded a sole-source contract to Hughes Aircraft Company to build a 24-hour satellite (SYNCOM).

Since then, these solar-powered satellites have been made to carry the bulk of telephone, television, and military communications. Now they carry internet communications as well.

A satellite system consists of a communications satellite, or comsat, orbiting 22,236 miles above the equator, taking exactly 24 hours to complete one orbit around the earth, making it geostationary – it stays above a fixed spot on the earth's surface.

The satellite contains solar cells for power, rocket engines designed to maintain its geosynchronous orbit, and an onboard computer to monitor all of its systems. It also contains an array of radios that monitor one frequency each.

The ground station's radio is connected to a high-performance router on the service provider's network. In many situations, the service provider is using asynchronous transfer mode (ATM), a high-performance network protocol designed for telecoms, to send data through the satellite. ATM breaks data into small, fixed-length packets.

The internet service provider's (ISP) data center contains not only a comsat link, but also a high-bandwidth connection to a backbone ISP, like AT&T, Sprint, PSInet, Qwest Communications, or Exodus Communications. The data center also includes Web caches, and domain-name servers.



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